ASSOCIATES DISCUSSION

1. Acknowledgements

2. Pattern of Talk - a bit of past history - an examination of the present - a look at the future, its promises and problems - and, an evaluation of our competitive standing in this business.

3. Before doing this - let me attempt to characterize the business - remember I am talking for the most part about the work of NASA - not the activities in space of the military departments.

   a. Strange animal - nothing quite like it in government or industry.

   b. Research and development

with information - new knowledge - the principal, indeed the only real product.

c. Know that information - and the techniques developed to acquire it - will lead, most certainly, to new systems, new products, even to the more adequate meeting of defense requirements by the military.

d. But, the fact remains - we are not attempting to make bombs, missiles, operational communications or weather forecasting systems.

e. We are charged with - "the expansion of human knowledge of phenomena in the atmosphere and space". Then we are admonished to make available

to the military whatever we may find having "military value or significance" and to "provide for the widest practicable and appropriate dissemination of information concerning our activities and the results thereof"

f. So I repeat again - we are a strange operation in government with only an R & D mission to undertake activities in space for peaceful purposes for the benefit of all mankind.

4. Now for a look at the past

a. Space Act passed and signed 29 July 1958

b. Sworn in 19 August -

started work 9 Sept.

c. Open for business as NASA

1 October 1958

just two years ago.

d. 8000 employees then -

19,000 approx. today

e. Sept. 30 1958 - $101,000,000

Oct. 1, 1958 - 335,000,000 FY 1959

FY 1960 - 524,000,000

FY 1961 - 915,000,000 supplemental

f. Plant - 6 large, 3 small

g. Remember - only R & D

5. What has been accomplished with that growth and those resources?

a. Successfully launched

6 satellites - 2 probes

b. Since 4 October 1957

US has successfully launched

26 satellites

15 still up

USSR has launched

6 satellites

1 still up

US has put into sun orbit 2

USSR has put into sun orbit 1

USSR has impacted moon 1

US has recovered 2

USSR has recovered 1

c. Caution against simple scorekeeping even if satisfying to ego of U.S.

6. Where are we at present?

a. Have an organization - excellent people and maturing as an organizational entity.

b. Have worked out relationship with military to reasonable satisfaction of both sides - AACB.

c. Have worked out long-range plan which permits focussing

of our energies and resistance to pressures of hysteria or special interest groups.

d. Expect to launch this calendar year spacecraft of various types in support of balanced, well-planned program involving manned flight in space, scientific research in space environment, applications of space technology to useful purposes as in meteorology and communications.

e. Have begun to make apparent the character and quality of our program by recent experiments - successes for which we are grateful.

f. Have better understanding of magnitude of task as we start analyzing data and drawing conclusions.

7. Brief analysis of 3 major accomplishments this year in Pioneer V, Tiros I, Echo.

   a. Pioneer V

      22,500,000 miles - first real success in long lived, long distance communication - problems uncovered

   b. Tiros I

      22,300 pictures over 3 months of active life - surprising - Tiros II - Using agencies collaborate

   c. Echo - describe - samples of material - wrinkled - transmission.

8. What of future?

   a. Continuing program - 1.25, 1.5, 2.0 billion

   b. Vehicle program - Scout, Agena, Centaur, Saturn, Nova class, Rover - 10 now but should reduce to 5 - military use.

c. Two flights per month

d. Manned flight - not a stunt, not undertaken to beat Russians and why, do not intend to stop if they are first - only first step and necessary to determine future program

e. Applications - meteorology, passive and active communications

f. Exploration - lunar, Mars, Venus

g. Highlights of next 10 years

Highlights of next year's plan include an orbital flight of an astronaut in the Mercury capsule, and the first launching of the Atlas-Centaur launch vehicle.

Early in 1962, we should launch the first lunar impact spacecraft and later in the year the first instrumented probe into the

vicinity of Venus or Mars.

In the '62-'63 period, we have targeted the first two and three stage launchings of Saturn. The three stage version of this vehicle will have a 20,000-pound low orbit payload capability.

In 1963, we plan the first launching of an unmanned vehicle for a controlled landing on the moon and the first launching of an orbiting astronomical observatory.

Before the end of '64, we expect to send a vehicle around the moon and bring it back to earth and to make our first unmanned reconnaissance of Venus or Mars, or both.

For 1965, we are pushing for the first flight test of a nuclear second stage vehicle.

In the 1965-67 period, we will begin the launching series leading to manned circumnavigation of the moon and the establishment of a near-earth space station.

Early in the '70's, we will be expecting to land a man on the moon.

9. Where do we stand with USSR?

a. Compete across the board - space is glamorous, visible, exciting - one in which spectaculars have been reserved, very largely, to USSR.

b. In space -

- USSR ahead in thrust & why
- US doing well otherwise
- May change any day -
  only pattern discernible
  about Russian activities
  is massive assault on
  on difficult problems of
  manned flight at present -
  so would I.
- Competition vs race -
  if we follow USSR must
  always be second.

10. Having given you this picture - you may well ask - Why - Why are we spending this money - going at this rate - To what end?

a. Competition - but this is valid only so long as the competition is apparent - so long as competition lasts.

b. Cash return - yes, but only in the wake of achievement - communications, meteorology, navigation.

c. Human curiosity about things scientific - the desire to probe the unknown - has motivated human curiosity through the ages. In reality, this is the basic reason we now look toward the moon with envious eyes and are building the transportation systems to get there.

d. All useful products, our industrial developments and our national strength, economically and militarily, have arisen out of the intangible, often times seemingly wild-eyed dreams

of men seeking, in the first instance, only to satisfy their curiosity or to increase human understanding of the physical world about them.

My colleague, Hugh Dryden, often says that man learned to fly because he envied the birds. Certainly, the Wright Brothers had no real vision of the great airliners that ply the skies today - of the military defense of this nation being dependent, substantially, on our capabilities in military aviation. Nor did they foresee the importance of the airplane in bringing nations together in time and space with the opportunity

thus provided - though not yet exploited - for increased understanding and friendship between peoples.

f. In the words of another colleague, Wernher von Braun: "The same mechanism will operate as we proceed to explore and exploit the space environment. We know that the process will widen man's sphere of action. It will increase his knowledge. It will open the last frontier. No one can foretell all the benefits that may accrue. We simply cannot imagine, with minds limited by tradition, knowledge and experience to earthbound concepts, what will be the total effects upon national growth, virility and productivity.

"Winston Churchill once said that the destiny of mankind

is not decided by material computation. When great causes are on the move, as he added, we learn that we are spirits, not animals, and that something is going on in space and time and beyond space and time which spells duty. We who are involved in this challenging enterprise feel a high sense of duty to demonstrate the ability of free men to assume clearly recognized leadership in the exploration of space as in all other areas of scientific and technological progress."

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